Document Number 1

Entry 1 of 4 File: DWPI Dec 30, 1998

DERWENT-ACC-NO: 1998-498150
DERWENT-WEEK: 199920

TITLE: Vector search method vector quantisation in coding audio signal - calculates difference between prediction vector and input vector in such way that combinations of factors respectively multiplied by several basic vectors are changed according to Gray code

INVENTOR: MAEDA, S; MAEDA, Y

PATENT-ASSIGNEE: ; SONY CORP[; SONY]

PRIORITY-DATA:
1997JP-0078615 March 28, 1997

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
CN 1203411 A	December 30, 1998	N/A	000	G10L007/00
EP 867863 A1	September 30, 1998	E	020	G10L009/14
AU 9859706 A	October 1, 1998	N/A	000	H03M007/34
JP 10276096 A	October 13, 1998	N/A	012	H03M007/30

DESIGNATED-STATES: AL AT BE CH DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-NO
CN 1203411A	March 28, 1998	1998CN-0109402	N/A
EP 867863A1	March 26, 1998	1998EP-0302329	N/A
AU 9859706A	March 30, 1998	1998AU-0059706	N/A
JP10276096A	March 28, 1997	1997JP-0078615	N/A

INT-CL (IPC): G10 L 7/00; G10 L 9/14; G10 L 9/18; H03 M 7/30; H03 M 7/34; H03 M 7/38

ABSTRACTED-PUB-NO: EP 867863A
BASIC-ABSTRACT:

The vector search method calculates the difference between a prediction vector and an input vector in such a way that combinations of factors respectively multiplied by several basic vectors are changed according to a Gray code.

Intermediate values Gu and Gi are obtained by calculation (410) of a synthetic vector created according to a sign word u and adjacent sign word i (365) of the Gray code. u and i are only different from each other in

terms of a predetermined bit position v and a change delta Gu calculated by using the Gray code characteristic. Also delta Gu is used to express a change delta Gu' between intermediate values Gi' and Gu' with sign words i' and u' different again only in predetermined bit position v.

USE - For obtaining optimal sound source vector in vector quantisation in compressing to code audio signal and acoustic signal.

ADVANTAGE - Increases vector search speed.

CHOSEN-DRAWING: Dwg.3/8

TITLE-TERMS:
VECTOR SEARCH METHOD VECTOR QUANTUM CODE AUDIO SIGNAL CALCULATE DIFFER PREDICT VECTOR INPUT VECTOR WAY COMBINATION FACTOR RESPECTIVE MULTIPLICATION BASIC VECTOR CHANGE ACCORD GRAY CODE

DERWENT-CLASS: P86 W04

EPI-CODES: W04-V05G3A;

SECONDARY-ACC-NO:
Non-CPI Secondary Accession Numbers: N1998-389169

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Document Number 1

Entry 1 of 29 File: USPT Oct 26, 1999

DOCUMENT-IDENTIFIER: US 5974377 A
TITLE: Analysis-by-synthesis speech coding method with open-loop and closed-loop search of a long-term prediction delay

BSPR:
In an analysis-by-synthesis speech coder, linear prediction of the speech signal is performed in order to obtain the coefficients of a short-term synthesis filter modelling the transfer function of the vocal tract. These coefficients are passed to the decoder, as well as parameters characterising an excitation to be applied to the short-term synthesis filter. In the majority of present-day coders, the longer-term correlations of the speech signal are also sought in order to characterise a long-term synthesis filter taking account of the pitch of the speech. When the signal is voiced, the excitation in fact includes a predictable component which can be represented by the past excitation, delayed by TP samples of the speech signal and subjected to a gain g.sub.p. The long-term synthesis filter, also reconstituted at the decoder, then has a transfer function of the form 1/B(z) with B(z)=1-g.sub.p.z.sup.-TP. The remaining, unpredictable part of the excitation is called stochastic excitation. In the coders known as CELP ("Code Excited Linear Prediction") coders, the stochastic excitation consists of a vector looked up in a predetermined dictionary. In the coders known as MPLPC ("Multi-Pulse Linear Prediction Coding") coders, the stochastic excitation includes a certain number of pulses the positions of which are sought by the coder. In general, CELP coders are preferred for low data transmission rates, but they are more complex to implement than MPLPC coders.

DEPR:
One possibility is to start by compiling a list of words of ns bits by counting in Gray code from 0 to 2.sup.ns -1, and to obtain the ordered quantification table by deleting from that list the words not having a Hamming weight of np. The the table thus obtained is such that two consecutive words have a Hamming distance of np-2. If the indices in this table have a binary representation in Gray code, any error in the least-significant bit causes the index to vary by .+-.1 and thus entails the replacement of the actual occupation word by a word which is adjacent in the meaning of the threshold np-2 over the Hamming distance, and an error in the i-th least-significant bit also causes the index to vary by .+-.1 with a probability of about 2.sup.1-i. By placing the nx least-significant bits of the index in Gray code in an unprotected category, any transmission error affecting one of these bits leads to the occupation word being replaced by an adjacent word with a probability at least equal to (1+1/2+. . . +1/2.sup.nx-1)/nx. This minimal probability decreases from 1 to (2/nb)(1-1/2.sup.nb) for nx increasing from 1 to nb. The errors affecting the nb-nx most significant bits of the index will most often be corrected by virtue of the protection which the channel coder applies to them. The value of nx in this case is chosen as a compromise between robustness to errors (small values) and restricted size of the protected categories (large values).

Document Number 2

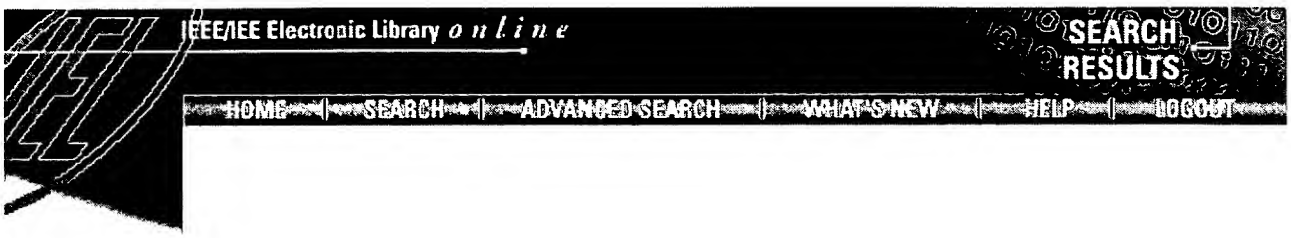
Entry 2 of 29 File: USPT Oct 5, 1999

DOCUMENT-IDENTIFIER: US 5963898 A
TITLE: Analysis-by-synthesis speech coding method with truncation of the impulse response of a perceptual weighting filter

BSPR:
In an analysis-by-synthesis speech coder, linear prediction of the speech signal is performed in order to obtain the coefficients of a short-term synthesis filter modelling the transfer function of the vocal tract. These coefficients are passed to the decoder, as well as parameters characterising an excitation to be applied to the short-term synthesis filter. In the majority of present-day coders, the longer-term correlations of the speech signal are also sought in order to characterise a long-term synthesis filter taking account of the pitch of the speech. When the signal is voiced, the excitation in fact includes a predictable component which can be represented by the past excitation, delayed by TP samples of the speech signal and subjected to a gain g.sub.p. The long-term synthesis filter, also reconstituted at the decoder, then has a transfer function of the form 1/B(z) with B(z)=1-g.sub.p.z.sup.-TP. The remaining, unpredictable part of the excitation is called stochastic excitation. In the coders known as CELP ("Code Excited Linear Prediction") coders, the stochastic excitation consists of a vector looked up in a predetermined dictionary. In the coders known as MPLPC ("Multi-Pulse Linear Prediction Coding") coders, the stochastic excitation includes a certain number of pulses the positions of which are sought by the coder. In general, CELP coders are preferred for low data transmission rates, but they are more complex to implement than MPLPC coders.

DEPR:
One possibility is to start by compiling a list of words of ns bits by counting in Gray code from 0 to 2.sup.ns -1, and to obtain the ordered quantification table by deleting from that list the words not having a Hamming weight of np. The table thus obtained is such that two consecutive words have a Hamming distance of np-2. If the indices in this table have a binary representation in Gray code, any error in the least-significant bit causes the index to vary by .+-.1 and thus entails the replacement of the actual occupation word by a word which is adjacent in the meaning of the threshold np-2 over the Hamming distance, and an error in the i-th least-significant bit also causes the index to vary by .+-.1 with a probability of about 2.sup.1-i. By placing the nx least-significant bits of the index in Gray code in an unprotected category, any transmission error affecting one of these bits leads to the occupation word being replaced by an adjacent word with a probability at least equal to (1+1/2+. . . +1/2.sup.nx-1)/nx. This minimal probability decreases from 1 to (2/nb) (1-1/2.sup.nb) for nx increasing from 1 to nb. The errors affecting the nb-nx most significant bits of the index will most often be corrected by virtue of the protection which the channel coder applies to them. The value of nx in this case is chosen as a compromise between robustness to errors (small values) and restricted size of the protected categories (large values).

ORPL:
Goalic et al, "An Intrinsically Reliable and Fast Algorithm to Compute the Line Spectrum Pairs (LSP) in Low bit CELP Coding", ICASSP '95.



gray code and vector Refine

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CNF	TOC	PDF	**Channel noise recovery of images through anti-Gray coding technique** *Lin, C.H.; Kuo, C.J.* Acoustics, Speech, and Signal Processing, 1996. ICASSP-96. Conference Proceedings., 1996 IEEE International Conference on Volume: 4 , 1996 , Page(s): 1886 -1889 vol. 4
CNF	TOC	PDF	**Performing BMMC permutations in two passes through the expanded delta network and MasPar MP-2** *Wisniewski, L.F.; Cormen, T.H.; Sundquist, T.* Frontiers of Massively Parallel Computing, 1996. Proceedings Frontiers '96., Sixth Symposium on the , 1996 , Page(s): 282 -289
PER	TOC	PDF	**Index transformation algorithms in a linear algebra framework** *Edelman, A.; Heller, S.; Lennart Johnsson, S.* Parallel and Distributed Systems, IEEE Transactions on Volume: 5 12 , Dec. 1994 , Page(s): 1302 -1309
CNF	TOC	PDF	**A kind of pseudo-Gray coding based on Hopfield neural network** *Jiayu Lin; Bo Yi; Zhenkang Shen* Signal Processing Proceedings, 1998. ICSP '98. 1998 Fourth International Conference on Volume: 2 , 1998 , Page(s): 1295 -1298 vol.2
CNF	TOC	PDF	**A folding ADC employing a robust symmetrical number system with Gray-code properties** *Pace, P.E.; Styer, D.; Akin, I.A.*

Circuits and Systems, 1998. ISCAS '98. Proceedings of the 1998 IEEE International Symposium on
Volume: 1 , 1998 , Page(s): 397 -400 vol.1

PER

Efficient codebook search procedure for vector-sum excited linear predictive coding of speech
Chan, C.-F.; Chui, S.-P.
Electronics Letters
Volume: 30 22 , 27 Oct. 1994 , Page(s): 1830 -1831

PER

CELP coding using trellis-coded vector quantization of the excitation
Popescu, A.; Moreau, N.; Lamblin, C.
Speech and Audio Processing, IEEE Transactions on
Volume: 3 6 , Nov. 1995 , Page(s): 464 -472

PER

Pseudo-Gray coding
Zeger, K.; Gersho, A.
Communications, IEEE Transactions on
Volume: 38 12 , Dec. 1990 , Page(s): 2147 -2158

PER

A simple method for determining Hadamard sequency vectors

Irshid, M.I.
Computers, IEEE Transactions on
Volume: 37 6 , June 1988 , Page(s): 743 -745

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Search Results - Record(s) 1 through 4 of 4 returned.

☐ 1. Document ID: CN 1203411 A, EP 867863 A1, AU 9859706 A, JP 10276096 A
Entry 1 of 4 File: DWPI Dec 30, 1998

DERWENT-ACC-NO: 1998-498150
DERWENT-WEEK: 199920
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TITLE: Vector search method vector quantisation in coding audio signal - calculates difference between prediction vector and input vector in such way that combinations of factors respectively multiplied by several basic vectors are changed according to Gray code

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

☐ 2. Document ID: GB 2320388 B, GB 2320388 A, DE 19752929 A1, JP 10164595 A, JP 10164596 A
Entry 2 of 4 File: DWPI Mar 31, 1999

DERWENT-ACC-NO: 1998-289469
DERWENT-WEEK: 199915
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TITLE: Motion vector detection image processing device for picture coding - uses gray code value as address when read address continuously changes

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

☐ 3. Document ID: US 5841679 A, JP 09293066 A
Entry 3 of 4 File: DWPI Nov 24, 1998

DERWENT-ACC-NO: 1998-038838
DERWENT-WEEK: 199903
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TITLE: Vector calculator for information processor - has judgment unit to judge component of vector for search which fills search conditions when all bits other than first and second bit mask data are predetermined

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

☐ 4. Document ID: JP 06132911 A
Entry 4 of 4 File: DWPI May 13, 1994

DERWENT-ACC-NO: 1994-195487
DERWENT-WEEK: 199424

TITLE: Method for improving bit-proof error performance by gray coding - involves using signal bit sequence between standard vectors which raises error-performance in quantisation to maximum and does not need constraint for contents of vector quantity table NoAbstract

Terms	Documents
l1 and vector	4

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Search Results - Record(s) 1 through 10 of 29 returned.

☐ 1. Document ID: US 5974377 A
Entry 1 of 29 File: USPT Oct 26, 1999

US-PAT-NO: 5974377
DOCUMENT-IDENTIFIER: US 5974377 A
TITLE: Analysis-by-synthesis speech coding method with open-loop and closed-loop search of a long-term prediction delay

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

☐ 2. Document ID: US 5963898 A
Entry 2 of 29 File: USPT Oct 5, 1999

US-PAT-NO: 5963898
DOCUMENT-IDENTIFIER: US 5963898 A
TITLE: Analysis-by-synthesis speech coding method with truncation of the impulse response of a perceptual weighting filter

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

☐ 3. Document ID: US 5899968 A
Entry 3 of 29 File: USPT May 4, 1999

US-PAT-NO: 5899968
DOCUMENT-IDENTIFIER: US 5899968 A
TITLE: Speech coding method using synthesis analysis using iterative calculation of excitation weights

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

☐ 4. Document ID: US 5884010 A
Entry 4 of 29 File: USPT Mar 16, 1999

US-PAT-NO: 5884010
DOCUMENT-IDENTIFIER: US 5884010 A
TITLE: Linear prediction coefficient generation during frame erasure or packet loss

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

☐ 5. Document ID: US 5867602 A
Entry 5 of 29 File: USPT Feb 2, 1999

US-PAT-NO: 5867602
DOCUMENT-IDENTIFIER: US 5867602 A
TITLE: Reversible wavelet transform and embedded codestream manipulation

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

☐ 6. Document ID: US 5859742 A
Entry 6 of 29 File: USPT Jan 12, 1999

US-PAT-NO: 5859742
DOCUMENT-IDENTIFIER: US 5859742 A
TITLE: Disk storage apparatus having head overshoot and undershoot control

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

☐ 7. Document ID: US 5754734 A
Entry 7 of 29 File: USPT May 19, 1998

US-PAT-NO: 5754734
DOCUMENT-IDENTIFIER: US 5754734 A
TITLE: Method of transmitting voice coding information using cyclic redundancy check bits

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

☐ 8. Document ID: US 5633982 A
Entry 8 of 29 File: USPT May 27, 1997

US-PAT-NO: 5633982
DOCUMENT-IDENTIFIER: US 5633982 A
TITLE: Removal of swirl artifacts from celp-based speech coders

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

☐ 9. Document ID: US 5615298 A
Entry 9 of 29 File: USPT Mar 25, 1997

US-PAT-NO: 5615298
DOCUMENT-IDENTIFIER: US 5615298 A
TITLE: Excitation signal synthesis during frame erasure or packet loss

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

☐ 10. Document ID: US 5596285 A
Entry 10 of 29 File: USPT Jan 21, 1997

US-PAT-NO: 5596285
DOCUMENT-IDENTIFIER: US 5596285 A
TITLE: Impedance adaptation process and device for a transmitter and/or receiver, integrated circuit and transmission system

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

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